SUMMARY OF ACTIVITIES AND REMEDIAL EFFORTS
MONSANTO CHEMICAL COMPANY, SODA SPRINGS, IDAHO

ACTIVITIES:

1978

First groundwater monitoring wells installed at site and quarterly monitoring instituted

1981

Two additional monitoring wells were installed directly downgradient of process ponds.

No significant impact was measured from any of the monitoring wells; conclusion was made that off-site migration was unlikely.

July 22, 1983

Analysis of water collected from downgradient/off-site springs indicated slightly elevated levels of fluoride, cadmium and selenium.

Retesting of these springs was conducted to confirm results.

July 29, 1983

Upon receipt of data confirmation, Monsanto personnel immediately contacted the owners of the only off-site drinking water well potentially affected by the contamination (the Harrises).

August 12, 1983

Arrangements were made by Monsanto to provide the Harrises with commercially bottled water.

October, 1984

The Harrises were provided a connection to the Soda Springs City water supply by Monsanto.

August 9, 1983

Monsanto personnel visited Mr. Al Murray, Chief, Water Quality Bureau and Mr. Larry Koenig, Assistant Chief, Water Quality Bureau in Boise, and shared with them the information discovered at the Harris property and the downgradient springs.

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SUMMARY OF ACTIVITIES AND REMEDIAL EFFORTS (Cont'd)

REMEDIAL ACTIVITIES:

Fall, 1983

Underflow solids ponds suspected to be the cause of contamination were taken out of service. The underflow (ore grade material) was excavated from the ponds and recycled through the process.

April 3, 1984

A request for proposal was issued by Monsanto and preliminary approval to proceed with a remedial groundwater investigation was issued to Golder Associates, Seattle, Washington.

June, 1984

Remedial investigation and groundwater assessment commenced.

June 1, 1985

Construction of the belt filter press was completed. This equipment allowed mechanical dewatering of underflow solids rather than natural dewatering in a pond.

August, 1985

Identification of the old hydroclarifier process unit as a significant source of groundwater contamination was made. Replacement of this system was completed.

Plant Well #1 was isolated to protect the plant's drinking water system from contamination. Continued use of this well in supplying process water to the plant, is creating a cone of depression limiting further migration of impacted water.

February, 1987

Remedial efforts at the old underflow solids ponds were started by filling the ponds with molten rock/slag.

October, 1987

The northwest pond was excavated and sealed.

SUMMARY OF ACTIVITIES AND REMEDIAL EFFORTS (Cont'd)

REMEDIAL ACTIVITIES: (Cont'd)

February, 1988

Management of the sealed northwest pond as a construction waste/solid waste management unit pursuant to a State of Idaho solid waste management permit.

May, 1987

Closure and replacement of monitoring wells 3, 4, 5, and 6. These wells were determined to have the potential to allow upper aquifer contaminated water to migrate into lower pristine water bearing zones.

October, 1988

Construction of a bentonite clay cap and a cover of crushed slag was completed sealing the old underflow solids ponds.

December, 1989

A new drinking water supply will be completed to supply the needs of the plant.

Throughout the activities that led to the identification of impact and what has been a successful remediation program at the Soda Springs site, both Idaho Department of Environmental Quality and EPA Region 10 officials have been briefed and involved.

Rating Factor	EPA Score	Golder Score	Comments
1. Observed Release	45	45	
2. Route Characteristics	—	—	
3. Containment	—	—	
4. Waste Characteristics	26	22	Quantity: 35,000 tons underflow solids rather than EPA estimated 490,000 cu. yards. Thus total quantity of hazardous substances is 126 tons not 488,000 yds (tons) as estimated by EPA. ref. 40 CFR Pt. 300, App. A, Sect 3.4.
5. Targets	44	26	City of Soda Springs water supply source is not located within aquifer of concern. A discontinuity as defined in 40 CFR, Part 300, App. A, Sect 3.5 exists between Monsanto site and springs. EPA has not demonstrated that contamination has bridged the discontinuity. Thus in accordance with 40 CFR, Part 30, App. A, Sect 3.5, users of the springs are not to be counted.
Adjusted Score	89.80	44.90	

FIGURE 1

GROUNDWATER ROUTE WORKSHEET

MONSANTO/EPA/ID

PROJECT NO. 893-1117.002 DWG. NO. 20663 DATE 11/27/89 DRAWN TK

Golder Associates

Rating Factor	EPA Score	Golder Score	Comments
1. Observed Release	45	0	Data collected by Monsanto upstream and downstream of point of discharge of the effluent show no deterioration in water quality. Cadmium was not detected in either sample. Ref. 40 CFR Part 300, App. A, Sect. 4.1. EPA data is from the effluent channel not surface water
2. Route Characteristics	—	10	Score based on available data.
3. Containment	—	3	Score based on available data.
4. Waste Characteristics	24	0	Toxicity: Quantity of cadmium is less than reportable quantity (40 CFR, Part 302.4), thus zero score. (40 CFR part 300, App. A, Sec 4.4) Quantity: Concentration of cadmium in effluent is 22 micrograms per liter. Thus is not a hazardous waste under 40 CFR Part 261.24 Amount of cadmium received is 20 grams; is also below reportable quantity (40 CFR Part 302) thus zero score according to 40 CFR Part 300 App. A, Section 4.4.
5. Targets	18	18	
Adjusted Score	30.21	0.0	

FIGURE **2**

SURFACE WATER ROUTE WORKSHEET

MONSANTO/EPA/ID

PROJECT NO. 893-1117.002 DWG. NO. 20662 DATE 11/27/89 DRAWN TK

Golder Associates

	EPA		Golder	
	S	S^2	S	S^2
Groundwater Route Score (S_{gw})	89.80	8064.04	49.90	2016.01
Surface Water Route Score (S_{sw})	30.21	912.64	0	0
Air Route Score (S_a)	0	0	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		8976.68		2016.01
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		94.74		44.90
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}/1.73 = S_m =$		54.77		25.96

FIGURE 3

WORKSHEET FOR COMPUTING S_m

MONSANTO/EPA/ID

PROJECT NO. 893-1117.002 DWG. NO. 20665 DATE 11/29/89 DRAWN TK

Golder Associates

SUMMARY OF RESPONSE TO EPA HAZARD RANKING MONSANTO SODA SPRINGS SITE

GROUNDWATER ROUTE

Two springs exist east of the Monsanto facility: - Formation and Ledger Spring. These springs surface as a result of high-angle extension faults along the margins of the valley. Geologic and groundwater quality data indicates that both springs are derived from groundwater within the older limestones of either the Wells Formation or undifferentiated Triassic sediments. Based on these data, a discontinuity as defined in 40 CFR Part 300, Appendix A, Section 3.5, exists between the site and the two springs. At the location where the springs surface there is no mixing with the groundwater of the shallow groundwater system since the springs surface in non-basaltic rocks.

4 b. Hazardous Waste Quantity

Information provided by Monsanto indicates that there was approximately 35,000 tons of underflow solids remaining in the old underflow solids ponds prior to their capping with slag in 1986. The underflow solids have a considerable ore concentration. Monsanto policy was therefore to recover as much of the material as possible from the ponds. The concentration of arsenic, cadmium and chromium in the underflow solids as determined by Ecology and Environment was about 0.36%. Therefore the total quantity of hazardous substances, as determined in accordance with 40 CFR Part 300, Appendix A, Section 3.4, is 126 tons, not 488,000 yards (tons) as indicated by EPA.

5. TARGETS

5a. Groundwater Use

The springs which supply the City of Soda Springs are not located within the aquifer of concern (Shallow Groundwater System). Formation Spring and Ledger Spring both surface in an area of travertine (calcium carbonate) deposited by mineralized groundwaters upwelling along extension faults related to the Meade Thrust. There is a discontinuity as defined in 40 CFR Part 300, Appendix A, Section 3.5, between the site and the two springs. EPA has not demonstrated that contamination has bridged the discontinuity. Therefore, in accordance with 40 CFR Part 30, Appendix A, Section 3.5, users of the two springs "are not to be counted".

Available hydrogeologic and water quality data indicate that Formation Spring and Ledger Spring are located in a hydraulically separate hydrogeologic flow system from the Shallow Groundwater System which underlies the Monsanto site. The springs originate from a deeper regional flow system associated with the Meade Thrust and surface as a result of faulting parallel to the valley walls. The calcium-magnesium ratios and

age dating of the waters confirms their different origin as compared to groundwaters from the Shallow Groundwater System in the basalts.

5c. Population Served by Groundwater within a Three-Mile Radius

Formation Spring and Ledger Spring which serve the City of Soda Springs are not within the aquifer of concern (Section 5a.). There is a discontinuity as defined in 40 CFR Part 300, Appendix A, Section 3.5, between the site and the two springs. Kerr McGee's production well serves 80 people. Monsanto's on-site production serves 400 people.

SURFACE WATER ROUTE

1. OBSERVED RELEASE

1a. Contaminants Detected in the Surface Water at the Facility or Downgradient from It

No quantitative evidence that Monsanto is releasing contaminants to surface water, as required by 40 CFR Part 300, Appendix A, Section 4.1, is presented by the EPA. The reported value of 22 ug/l of cadmium (32 ug/l in the effluent minus 10 ug/l in the transfer blank), was measured in the facility not the surface water. In fact water quality data collected by Monsanto upstream and downstream of the point of discharge of the effluent shows no deterioration in water quality. The upstream sample in Soda Creek was collected about 200 to 300 feet upstream of the effluent discharge. The downstream sample was collected about 200 to 300 feet downstream of the discharge at the point where Soda Creek is diverted into the irrigation canal. Therefore downstream irrigation users are not applying water with detectably elevated cadmium concentration. Cadmium was not detected in either the upstream or downstream sample. The detection limit for cadmium was 5 ug/l.

4. WASTE CHARACTERISTICS

4a. Toxicity and Persistence

The quantity of the hazardous substance present (cadmium) is less than the reportable quantity of one pound as defined in 40 CFR Part 302.4 (see 4b). Thus, a score of zero is applicable to this category, in accordance with 40 CFR Part 300, Appendix A, Section 4.4 (which in turn references Section 3.4).

4b. Hazardous Waste Quantity

The concentration of cadmium known to exist in the effluent is 22 ug/l (32 ug/l minus 10 ug/l in the transport blank). At this concentration, the effluent is not a hazardous waste under EPA designation criteria specified in 40 CFR Part 261.24. Under these criteria, the concentration

of cadmium in the effluent would have to exceed 1,000 ug/l to be regarded as a hazardous waste. The amount of the hazardous substance (cadmium), as received in aqueous form, is 20 grams or 0.00002 ton. This is based on the EPA assumption of the one-time volume of the effluent pond being 1,163 yd^3 (890,00 liters).

Summary of Legal Issues
Monsanto Company Comments
Soda Springs Plant
NPL Proposed Update No. 8

I. Congress has removed EPA'S authority to use the old HRS to list any site to be newly listed after October 17, 1988.

II. EPA'S failure to promulgate the new HRS has resulted in, and may continue to result in, the misallocation of scarce Agency resources, contrary to congressional dictates.

III. EPA has failed to consider the factors identified by Congress as necessary to support a listing of a "special waste" site on the NPL.

A. SARA requires EPA to consider certain additional information prior to adding sites involving special study waste to the NPL.

B. EPA failed to consider the special waste factors required by section 105(g) when the Agency nominated the Soda Springs site to the NPL.

1. EPA failed to identify the extent to which the hazard ranking score was affected by the presence of a special waste.

2. EPA's December 29, 1988, special waste study memorandum is an illegal administrative repeal of section 105(g) that fails to consider the special waste factors on a facility-by-facility basis.

C. EPA did not consider the actual degree of hazard (or lack thereof) posed by the special wastes when it proposed the Soda Springs site for listing.

D. EPA based the HRS scoring and the section 105(g) analysis on the total quantity of special waste in the facility of concern and not on the actual concentration of hazardous substances.

IV. EPA would be denied cost recovery under CERCLA to the extent its actions at a successfully remediated site are redundant or unnecessary based on available information.

V. Monsanto's surface water "release" is a "federally permitted release," and therefore EPA's right to recover response cost is limited pursuant to section 107(j).